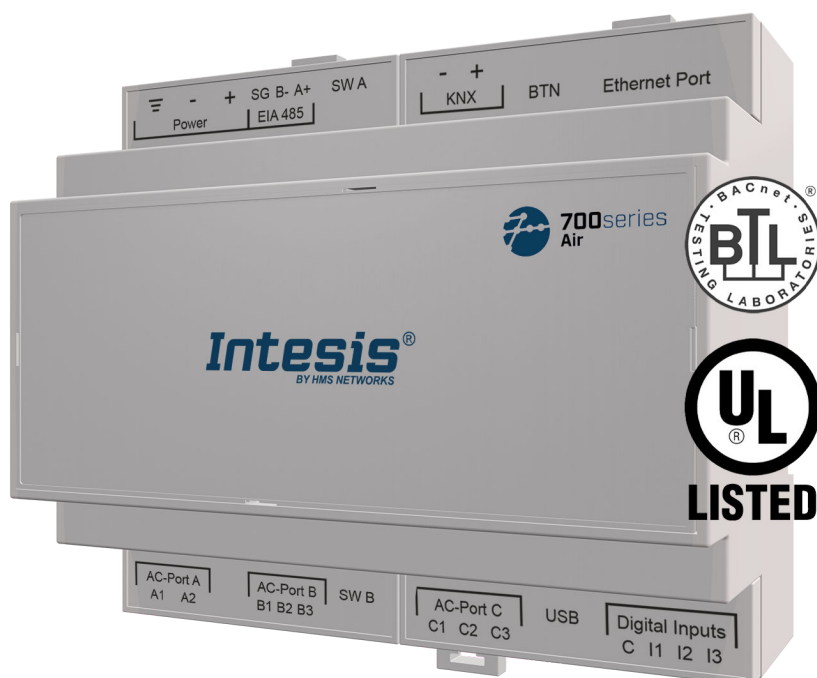


Mitsubishi Heavy Industries VRF with KNX, Serial and IP support
IN776MHI00XO000 GATEWAY

USER MANUAL
Version 1.2
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Table of Contents

1. Description and Order Codes	1
2. Licensing	2
3. General Information	3
3.1. Intended Use of the User Manual	3
3.2. General Safety Information	3
3.3. Admonition Messages and Symbols	3
4. Overview	5
4.1. Inside the Package	6
4.2. Gateway Main Features	6
4.3. Gateway General Functionality	7
5. Hardware	8
5.1. Mounting	8
5.2. Connection	10
5.2.1. Gateway Connectors	10
5.2.2. Common Connections	12
5.2.3. Connection Procedure for Modbus	13
5.2.4. Connection Procedure for KNX	15
5.2.5. Connection Procedure for BACnet	16
5.2.6. Connection Procedure for Home Automation	18
5.3. DIP Switches	19
5.4. LED Indicators	20
5.5. Push Button	21
5.6. Technical Specifications	22
5.7. Dimensions	23
6. Available Applications	24
6.1. Integration into Modbus Systems	24
6.1.1. Modbus Registers	24
6.2. Integration into KNX Systems	27
6.2.1. KNX Signals	27
6.3. Integration into BACnet Systems	31
6.3.1. BACnet Objects	31
6.4. Integration into Home Automation Systems	33
6.4.1. Home Automation Signals	33
7. Late Configuration: Change the Gateway's Protocol	34
8. Error Codes	35

1. Description and Order Codes

IN776MHI00XO000 Gateway

Modbus®, KNX®, BACnet®, and Home Automation® gateway for Mitsubishi Heavy Industries® air conditioning systems.

ORDER CODE	LEGACY ORDER CODE
IN776MHI00xO000	INMBSMHI048O000
	INMBSMHI128O000
	INKNXMHI048O000
	INKNXMHI128O000

2. Licensing

Distribution licenses for IN776MHI00xO000 are divided into three ranges:

Order Code	License	Maximum MHI units
IN776MHI00SO000	Small	16 indoor units 12 outdoor units
IN776MHI00MO000	Medium	64 indoor units 12 outdoor units
IN776MHI00LO000	Large	128 indoor units and 0 outdoor units or 80 indoor units and 12 outdoor units

3. General Information

3.1. Intended Use of the User Manual

This manual contains the main features of this Intesis gateway and the instructions for its appropriate installation, configuration, and operation.

The contents of this manual should be brought to the attention of any person who installs, configures, or operates this gateway or any associated equipment.

Keep this manual for future reference during the installation, configuration, and operation.

3.2. General Safety Information



IMPORTANT

Follow these instructions carefully. Improper work may seriously harm your health and damage the gateway and/or any other equipment connected to it.

Only technical personnel, following these instructions and the country legislation for installing electrical equipment, can install and manipulate this gateway.

Install this gateway indoors, in a restricted access location, avoiding exposure to direct solar radiation, water, high relative humidity, or dust.

All wires (for communication and power supply, if needed) must only be connected to networks with indoor wiring. All communication ports are considered for indoor use and must only be connected to SELV circuits.

Disconnect all systems from their power source before manipulating and connecting them to the gateway.

Use SELV-rated NEC class 2 or limited power source (LPS) power supply.

Supply always a correct voltage to power the gateway. See [Technical Specifications \(page 22\)](#).

Respect the expected polarity of power and communication cables when connecting them to the gateway.

3.3. Admonition Messages and Symbols



DANGER

Instructions that must be followed to avoid an imminently hazardous situation that, if not avoided, will result in death or severe injury.



WARNING

Instructions that must be followed to avoid a potentially hazardous situation that, if not avoided, could result in death or severe injury.



CAUTION

Instruction that must be followed to avoid a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.



IMPORTANT

Instruction that must be followed to avoid a risk of reduced functionality and/or damage to the equipment or to avoid a network security risk.

**NOTE**

Additional information which may facilitate installation and/or operation.

**TIP**

Helpful advice and suggestions.

**NOTICE**

Remarkable Information.

4. Overview

This document describes the available applications for this IN776MHI00xO000 gateway.

Mitsubishi Heavy Industries to:

Modbus TCP and RTU.

KNX TP.

BACnet/IP or MS/TP.

Home Automation.

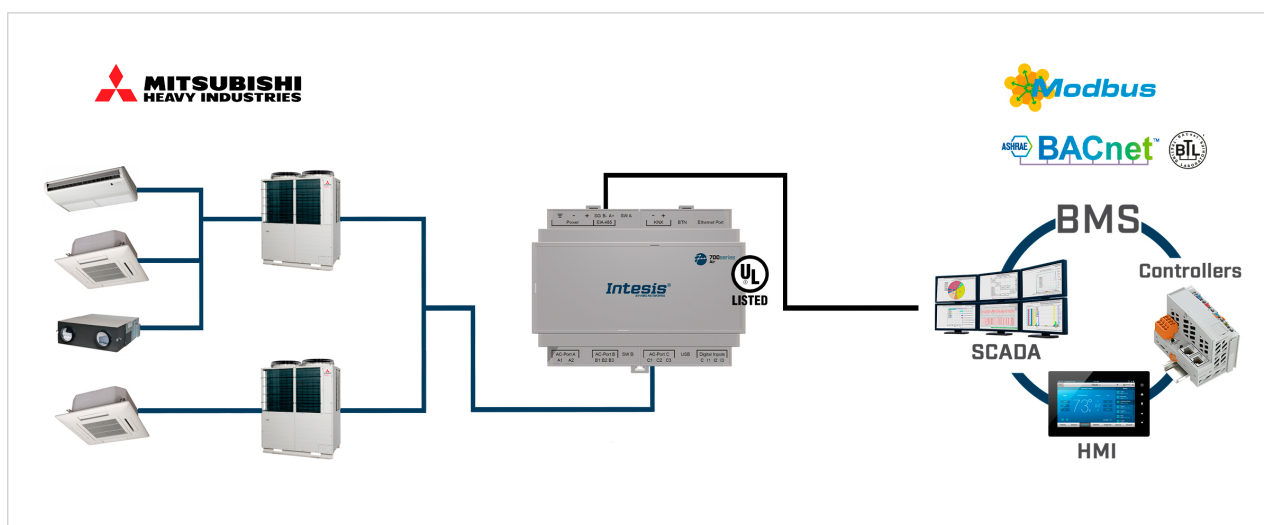


Figure 1. Integration of Mitsubishi Heavy Industries AC systems into Modbus / BACnet installations

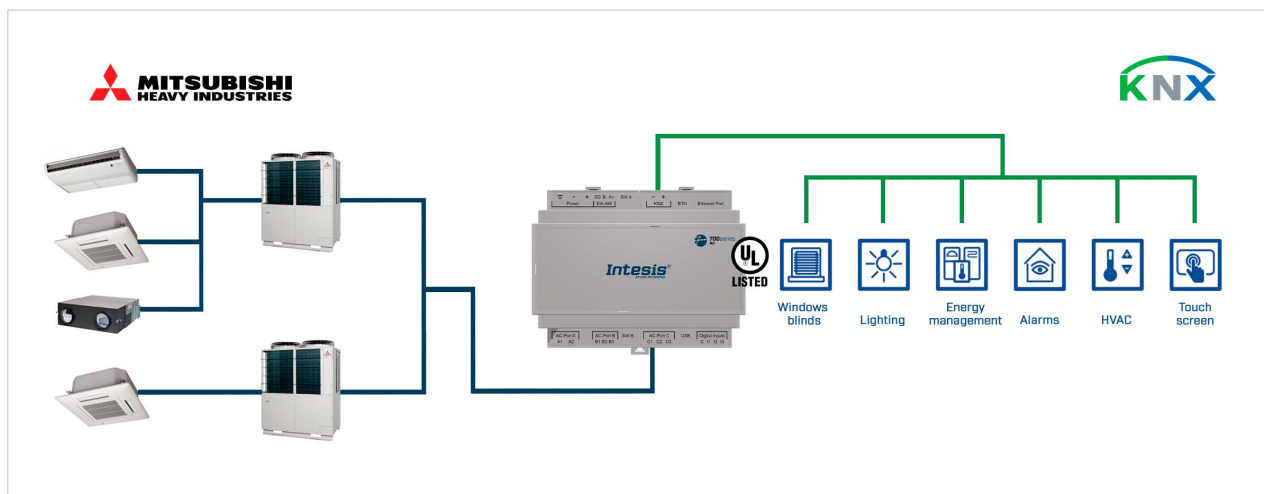


Figure 2. Integration of Mitsubishi Heavy Industries AC systems into KNX installations

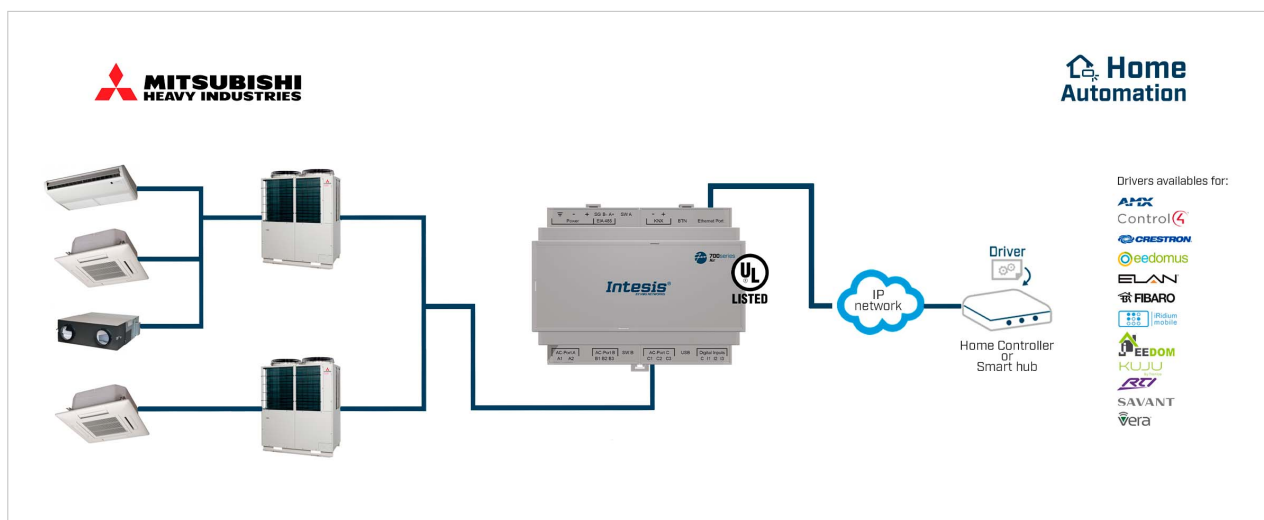


Figure 3. Integration of Mitsubishi Heavy Industries AC systems into Home Automation installations



IMPORTANT

This document assumes that the user is familiar with these technologies.

4.1. Inside the Package

Items included:

- Intesis IN776MHI00XO000 gateway.
- Mini USB (type B) to USB (type A) cable.
- Installation sheet.

4.2. Gateway Main Features

- Several applications available: Configurable for BACnet, Modbus, KNX, and Home Automation communication protocols.
- Late configuration: Change between applications easily.
- Scan function: Find the devices connected to the air conditioning bus.
- Specific signals to monitor outdoor units.
- 2 x DIP switches for EIA-485 termination and polarization configuration.
- 14 LEDs indicate the operating status for both the gateway and the communication bus.
- DNI rail and wall mounting case.
- Accredited with the main certifications for electronic equipment.
- Multiple ports for serial and IP communication:
 - Plug-in screw terminal block green for power supply (3 poles).
 - Plug-in screw terminal block green for EIA-485 (3 poles).
 - Plug-in screw terminal block orange for KNX (2 poles).
 - Ethernet.
 - Plug-in screw terminal block green for binary inputs (4 poles).
 - Mini type-B USB 2.0 port for connection to the PC.
 - Plug-in screw terminal block green for AC connection (2 poles).
 - Plug-in screw terminal block green (3 poles - reserved for future use).
 - Plug-in screw terminal block green (2 poles - reserved for future use).

4.3. Gateway General Functionality

With this Intesis IN776MHI00x0000 gateway, you can easily integrate Mitsubishi Heavy Industries air conditioning (AC) systems into an installation based on Modbus TCP, Modbus RTU, KNX, BACnet/IP, BACnet MS/TP, or Home Automation. To do so, the gateway acts as a server device of the installation itself, accessing all signals from each air conditioner unit and controlling the whole AC network.

The gateway is continuously polling the AC network, storing in its memory the current status of every signal you want to track and serving this data to the installation when requested. Also, when a signal status changes, the gateway sends a write telegram to the installation, waits for the response, and performs the corresponding action.

A lack of response from a signal activates a communication error, allowing you to know which signal from which AC unit is not correctly working.

5. Hardware

5.1. Mounting

**IMPORTANT**

Before mounting, please ensure that the chosen installation place preserves the gateway from direct solar radiation, water, high relative humidity, or dust.

**IMPORTANT**

Maximum mounting height: below 2 meters (6.5 feet).

**NOTE**

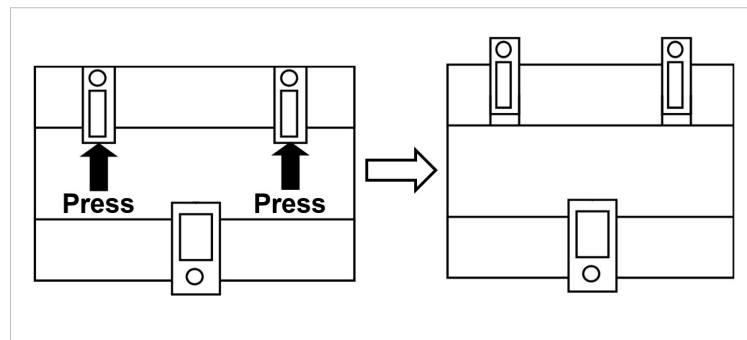
Mount the gateway on a wall or over a DIN rail. We recommend the DIN rail mounting option, preferably inside a grounded metallic industrial cabinet.

**IMPORTANT**

Ensure the gateway has sufficient clearances for all connections when mounted. See [Dimensions \(page 23\)](#).

Wall mounting

1. Press the top side mobile clips in the rear panel until you hear a *click*.



2. Use the clip holes to fix the gateway on the wall using screws.

**NOTE**

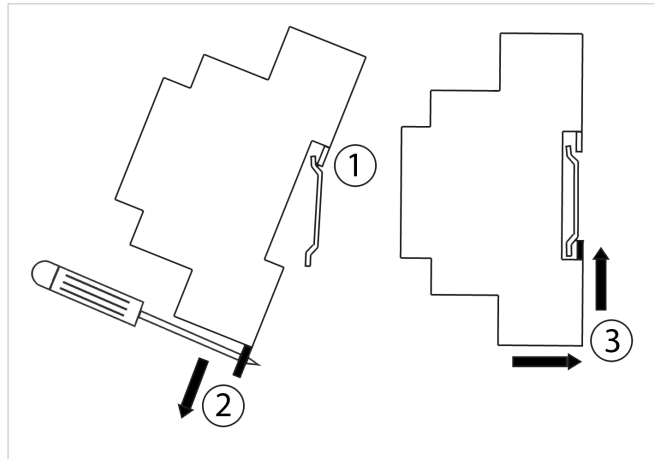
Use M3 screws, 25 mm (1") length.

3. Make sure the gateway is firmly fixed.

DIN rail mounting

Keep the clips down in their original position.

1. Fit the gateway's top side clips in the upper edge of the DIN rail.
2. Use a screwdriver or similar to pull the bottom clip down.
3. Fit the low side of the gateway in the DIN rail and let the clip switch back to its original position, locking the gateway to the rail.
4. Make sure the gateway is firmly fixed.



5.2. Connection



CAUTION
Disconnect all systems from the power source before manipulating and connecting them to the gateway.

5.2.1. Gateway Connectors

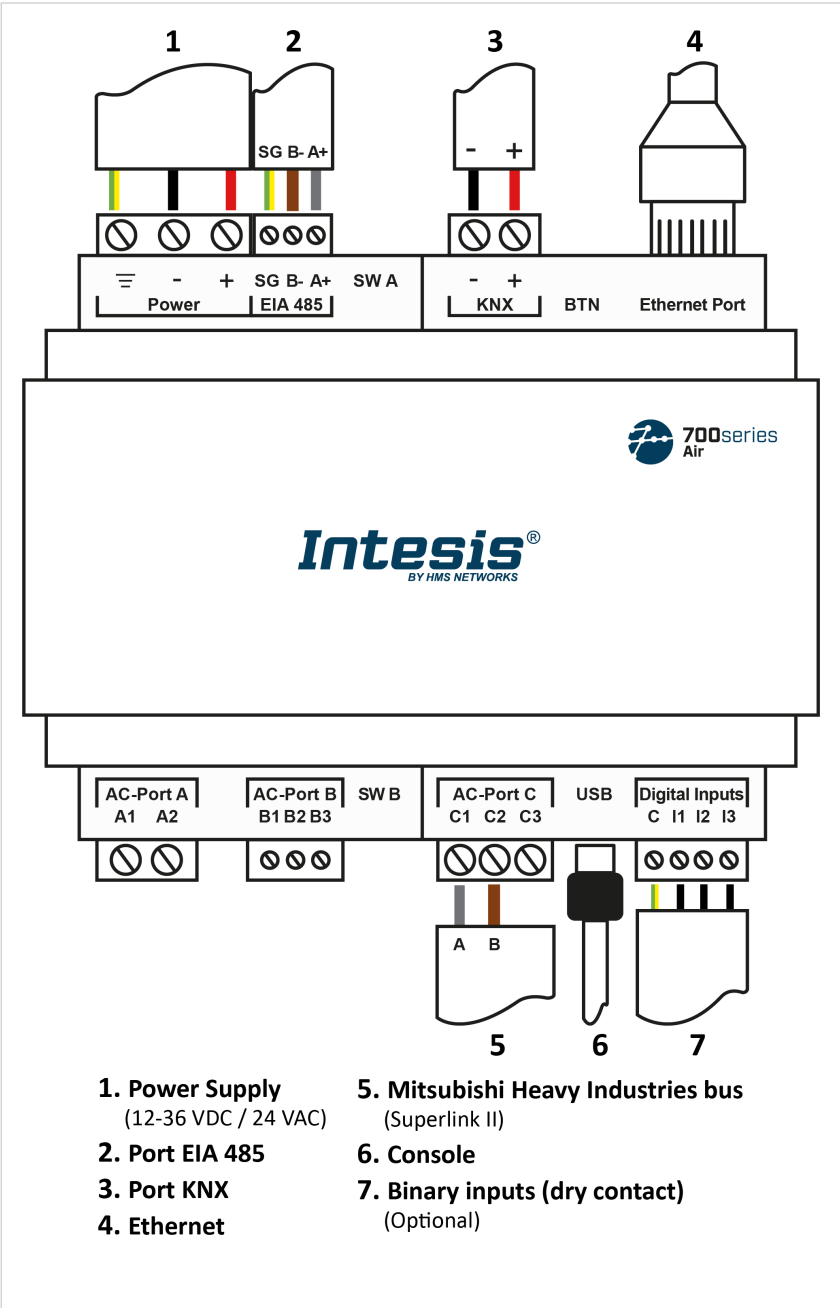


Figure 4. General view of all gateway connectors



NOTE
AC-Port A (A1, A2) and AC-Port B (B1, B2, B3) are reserved for future use.

**NOTICE**

The common connectors (those used for all applications), specific connectors (those used for each application), and the connection procedures are deeply explained in the following sections.

**NOTE**

Mount the gateway in the desired installation site before wiring.

**IMPORTANT**

Use solid or stranded wires (twisted or with ferrule).

Wire cross-section/gauge for all wire connectors (power supply and low-voltage buses: connectors 1, 2, 3, 5, and 7 on the wiring diagram figure above):

- 1 core: 0.5 to 2.5 mm² (24 to 11 AWG).
- 2 cores: 0.5 to 1.5mm² (24 to 15 AWG).
- 3 cores: not permitted.

Summary tables

BMS Protocol	Port EIA 485	Port KNX	Ethernet
BACnet	BACnet MS/TP	(Not used)	BACnet/IP and Console
Modbus	Modbus RTU	(Not used)	Modbus TCP and Console
KNX	(Not used)	KNX	Console
Home Automation	(Not used)	(Not used)	Home Automation and Console

AC Manufacturer	Port A	Port B	Port C
Mitsubishi Heavy	(Not used)	(Not used)	Mitsubishi Heavy (Superlink)

Pin Out	EIA 485	Port A	Port B	Port C
B-	B-	A1	B1	C1
A+	A+	A2	B2	C2
SNGD	SG	-	SG	(Not used)

**NOTE**

To know more about each port's specifications, see [Technical Specifications \(page 22\)](#).

5.2.2. Common Connections

5.2.2.1. Connecting the Gateway to the Power Supply

The power supply connector is a pluggable terminal block (3 poles) labeled as **Power**.



IMPORTANT

- Use SELV-rated NEC class 2 or limited power source (LPS) power supply.
- Connect the gateway's ground terminal to the installation grounding.
- A wrong connection may cause earth loops that can damage the Intesis gateway and/or any other system equipment.

Apply the voltage within the admitted range and of enough power:

- **For DC:** 12 .. 36 VDC (+/-10%), Max: 250 mA
- **For AC:** 24 VAC (+/-10 %), 50-60 Hz, Max: 127 mA

Recommended voltage: 24 VDC, Max: 127 mA



IMPORTANT

- **When using a DC power supply:** Respect the polarity labeled on the power connector for the positive and negative wires.
- **When using an AC power supply:** Ensure the same power supply is not powering any other device.

5.2.2.2. Connecting the Gateway to the Air Conditioning Bus

To connect the air conditioning network AB bus (Superlink) to the gateway, use the **C1** and **C2** poles of the **AC-Port C**.



IMPORTANT

This Intesis gateway supports VRF units with the Superlink-II version.¹



WIRING CONSIDERATIONS

- Maximum wiring length: 1000 meters (0.75 miles).
- Loop wiring is not allowed.



NOTE

- For the Mitsubishi Heavy Industries VRF series, connect the AB bus to the AC outdoor unit.
- For the Mitsubishi Heavy Industries domestic series with an SC-BIKN-E connector, you need an SC-ADNA-E adapter (not included).



NOTICE

See the wiring diagram in the Figure: [General view of all gateway connectors \(page 10\)](#)

¹Superlink-II is also called New Superlink.

5.2.3. Connection Procedure for Modbus

**NOTE**

Remember to check the [Common Connections \(page 12\)](#).

For Modbus TCP:

1. Connect the Modbus TCP Ethernet cable to the gateway's **Ethernet Port**.

**IMPORTANT**

Use a straight Ethernet UTP/FTP CAT5 or higher cable.

**IMPORTANT**

If communicating through the LAN of the building, contact the network administrator and make sure traffic on the used port is allowed through all LAN paths.

**NOTE**

When commissioning the gateway for the first time, DHCP will be enabled for 30 seconds. After that time, the default IP 192.168.100.246 will be set.

For Modbus RTU:

1. Connect the Modbus RTU communication cable to the gateway's **EIA-485** port.

**IMPORTANT**

Observe polarity.

**IMPORTANT**

Remember the characteristics of the standard EIA-485 bus:

- Maximum distance of 1200 meters (0.75 miles).
- Maximum of 32 devices connected to the bus.
- A termination resistor of 120 ohms (Ω) is needed at each end of the bus. The gateway has an internal bus biasing circuit already incorporating the termination resistor. It can be enabled using the DIP switch block (**SW A**) dedicated to the **EIA-485** port:

Position 1

- ON: 120 Ω termination active.
- OFF: 120 Ω termination inactive.

Position 2 and 3

- ON: Polarization active.
- OFF: Polarization inactive.

For further details, see [DIP Switches \(page 19\)](#).

**IMPORTANT**

If the termination resistor is enabled and you install the gateway at an end of the bus, do not install an additional termination resistor at that end.

2. Use the supplied USB Mini-B type to A type cable to connect the gateway, through its **USB** port, to a PC to configure it with Intesis MAPS.

**NOTE**

For Modbus RTU only, you can use the **Ethernet** port to connect the gateway and the PC instead.

**NOTICE**

Find all you need to know about the gateway configuration and Intesis MAPS in the IN776MHI00xO000 Gateway Configuration Guide.

**NOTICE**

See the wiring diagram in the Figure: [General view of all gateway connectors \(page 10\)](#)

5.2.4. Connection Procedure for KNX

**NOTE**

Remember to check the [Common Connections \(page 12\)](#).

1. Connect the KNX TP communication cable to the gateway's **KNX** port.

**IMPORTANT**

Observe polarity.

2. Use the supplied USB Mini-B type to A type cable to connect the gateway, through its **USB** port, to a PC to configure it with Intesis MAPS.

**NOTE**

You can use the **Ethernet** port to connect the gateway and the PC instead.

**NOTICE**

Find all you need to know about the gateway configuration and Intesis MAPS in the IN776MHI00xO000 Gateway Configuration Guide.

**NOTICE**

See the wiring diagram in the Figure: [General view of all gateway connectors \(page 10\)](#)

5.2.5. Connection Procedure for BACnet



NOTE

Remember to check the [Common Connections \(page 12\)](#).

For BACnet/IP:

1. Connect the BACnet/IP Ethernet cable to the gateway's **Ethernet Port**. The correct cable to use depends on where the gateway is connected:
 - **Connecting directly to a BACnet/IP device:** use a crossover Ethernet UTP/FTP CAT5 or higher cable.
 - **Connecting to a hub or switch of the LAN of the building:** use a straight Ethernet UTP/FTP CAT5 or higher cable.



IMPORTANT

When commissioning the gateway for the first time, DHCP will be enabled for 30 seconds. After that time, the default IP 192.168.100.246 will be set.



IMPORTANT

If communicating through the LAN of the building, contact the network administrator and make sure traffic on the used port is allowed through all LAN paths.

For BACnet MS/TP:

1. Connect the BACnet MS/TP communication cable to the gateway's **EIA-485** port.



IMPORTANT

Observe polarity.



IMPORTANT

Remember the characteristics of the standard EIA-485 bus:

- Maximum distance of 1200 meters (0.75 miles).
- Maximum of 32 devices connected to the bus.
- A termination resistor of 120 ohms (Ω) is needed at each end of the bus. The gateway has an internal bus biasing circuit already incorporating the termination resistor. It can be enabled using the DIP switch block dedicated to the EIA-485 port:

Position 1

- ON: 120 Ω termination active.
- OFF: 120 Ω termination inactive.

Position 2 and 3

- ON: Polarization active.
- OFF: Polarization inactive.

For further details, see [DIP Switches \(page 19\)](#).



IMPORTANT

If the termination resistor is enabled and you install the gateway at an end of the bus, do not install an additional termination resistor at that end.

2. Use the supplied USB Mini-B type to A type cable to connect the gateway, through its **USB** port, to a PC to configure it with Intesis MAPS.

**NOTE**

For BACnet MS/TP only, you can use the **Ethernet** port to connect the gateway and the PC instead.

**NOTICE**

Find all you need to know about the gateway configuration and Intesis MAPS in the IN776MHI00xO000 Gateway Configuration Guide.

**NOTICE**

See the wiring diagram in the Figure: [General view of all gateway connectors \(page 10\)](#)

5.2.6. Connection Procedure for Home Automation

**NOTE**

Remember to check the [Common Connections \(page 12\)](#).

1. Connect the Home Automation Ethernet cable to the gateway's **Ethernet Port**.

**IMPORTANT**

Use a straight Ethernet UTP/FTP CAT5 or higher cable.

**IMPORTANT**

If communicating through the LAN of the building, contact the network administrator and make sure traffic on the used port is allowed through all LAN paths.

**NOTE**

When commissioning the gateway for the first time, DHCP will be enabled for 30 seconds. After that time, the default IP 192.168.100.246 will be set.

2. Use the supplied USB Mini-B type to A type cable to connect the gateway, through its **USB** port, to a PC to configure it with Intesis MAPS.

**NOTICE**

Find all you need to know about the gateway configuration and Intesis MAPS in the IN776MHI00xO000 Gateway Configuration Guide.

**NOTICE**

See the wiring diagram in the Figure: [General view of all gateway connectors \(page 10\)](#)

5.3. DIP Switches

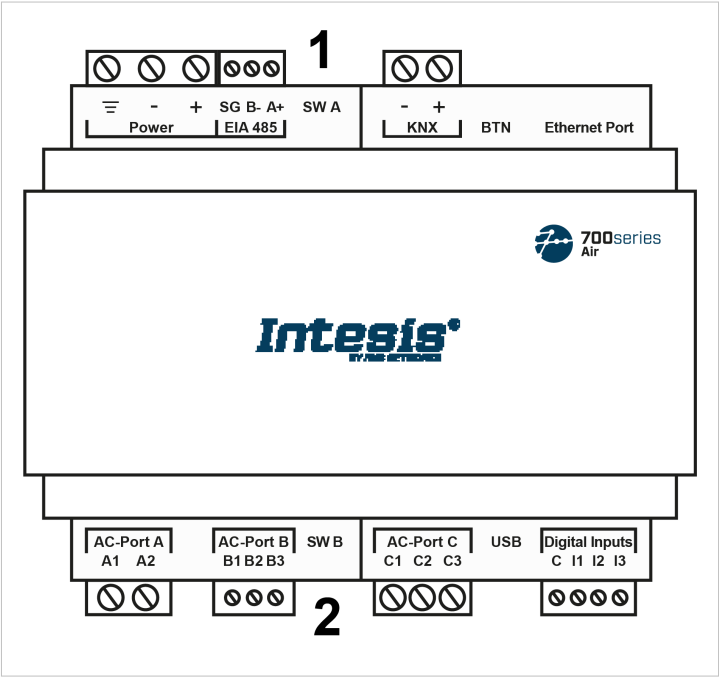


Figure 5. IN776MHI00xO000 gateway DIP switches

1: DIP switch A (SW A).

2: DIP switch B (SW B).

Each DIP switch is dedicated to a 485 port, and its function is to activate or deactivate the termination resistor and the polarization of each port:

Position			Description
1	2	3	
↑	X	X	120 Ω termination active
↓	X	X	120 Ω termination inactive (default position)
X	↑	↑	Polarization active (default position)
X	↓	↓	Polarization inactive

5.4. LED Indicators

LED	Color	Description
Top side		
LED 1 (PWR)	Green	Power on (not programmable)
LED 2 (ERR)	Red	Blinking: Hardware error
LED 3	Green	485 Tx (RS485 for BACnet or Modbus)
LED 4	Yellow	485 Rx (RS485 for BACnet or Modbus)
LED 5	Green	KNX Port Tx
LED 6	Yellow	KNX Port Rx
BUTTON LED	Green	KNX: Programming mode on BACnet: BACnet link established Modbus and Home Automation: Not used
LED 7	Green	Ethernet link established
LED 8	Yellow	Ethernet speed
Bottom side		
LED 9	Green	AC-Port A Tx (HBS)
LED 10	Yellow	AC-Port A Rx (HBS)
LED 11	Green	AC-Port B Tx (RS485)
LED 12	Yellow	AC-Port B Rx (RS485)
LED 13	Green	AC-Port C Tx (UFO-SLQ): It shows Superlink activity
LED 14	Yellow	AC-Port C Rx (UFO-SLQ): It show Superlink activity



NOTE

LEDs are hidden behind the four frontal labeled covers. These covers are assembled by pressure, so you just need to pull them to remove them.

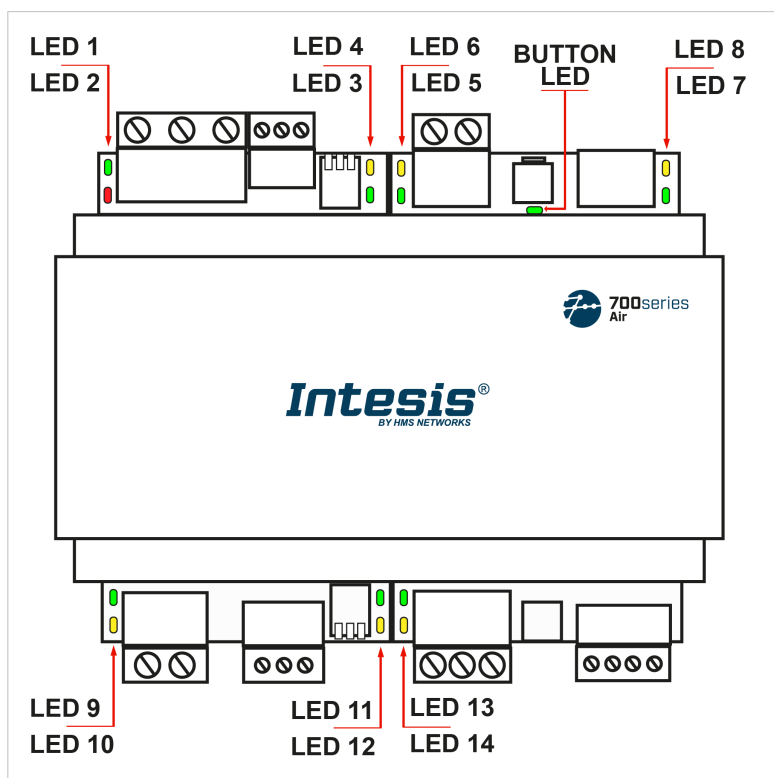


Figure 6. The gateway with the covers already removed

5.5. Push Button

Find the push button at the top side, between the KNX and the Ethernet connectors.

**NOTE**

The button is hidden and only accessible using a thin object like a paper clip.

Common functionality:

Reset factory settings

1. Push the button.
2. Power on the gateway.
3. Wait four seconds.
4. Release the button.

Functionalities depending on the current project:

BACnet

- Push the button to send an I-Am message to all BACnet ports.

KNX

- Push the button to switch between normal mode and programming mode.

5.6. Technical Specifications

Enclosure	Plastic, type PC (UL 94 V-0) Color: Light Grey. RAL 7035 - Net dimensions (DxWxH): Millimeters: 90 x 106 x 58 mm Inches: 3.5 x 4.2 x 2.3" - Clear space for installation (DxWxH): Millimeters: 130 x 115 x 100 mm Inches: 5.1 x 4.5 x 3.9"	Protection	IP20 (IEC60529)
Mounting	Wall: M3 screws, 25 mm (1") length. Below 2 meters (6 feet) DIN rail EN60715 TH35	Binary Inputs	1 x Green pluggable terminal block (4 poles) I1, I2, I3, and Common 1500 VDC isolation from other ports
Terminal Wiring (for power supply and low-voltage signals)	Per terminal: solid wires or stranded wires (twisted or with ferrule) 1 core: 0.5 .. 2.5 mm² (24 to 11 AWG) 2 cores: 0.5 .. 1.5 mm² (24 to 15 AWG) 3 cores: not permitted Use class 2 cables for cables longer than 3.05 meters (10 feet)	Push Button	Common functionality - Factory reset Specific functionalities - BACnet: To send I-Am message to all BACnet ports - KNX: To switch between normal and programming modes
Power	- For DC: 12 to 36 VDC +/-10%, Max: 250 mA - For AC: 24 VAC +/-10%, 50-60 Hz, Max: 127 mA Recommended: 24 VDC, Max: 127 mA	Console Port	USB Mini-B type 2.0 compliant 1500 VDC isolation
Port EIA-485	1 x Green pluggable terminal block (3 poles) SG (Reference ground or shield), B-, A+ 1500 VDC isolation from other ports	AC PORTS	AC-Port A: Serial, 2 poles (Reserved for future use) AC-Port B: Serial, 3 poles (Reserved for future use) AC-Port C: Serial, 2 poles
Ethernet	1 x Ethernet 10/100 Mbps RJ45	Operational Temp.	Celsius: 0 .. 60°C Fahrenheit: 32 .. 140°F
Port KNX	1 x Orange pluggable terminal block (2 poles)	Operational Hum.	5% to 95%, no condensation
DIP switches SW A and SW B	2 x DIP switch (3 position) blocks for EIA-485 serial port configuration: Position 1 - On: 120 Ω termination active - Off: 120 Ω termination inactive Position 2 and 3 - On: Polarization active - Off: Polarization inactive	LEDs	2 x Run (Power/Error) 2 x Port EIA485 TX/RX 2 x Port KNX TX/RX 1 x Button indicator 2 x Ethernet Link/Speed 2 x AC Port A TX/RX 2 x AC Port B TX/RX 2 x AC Port C TX/RX

5.7. Dimensions

- **Net dimensions (DxWxH)**

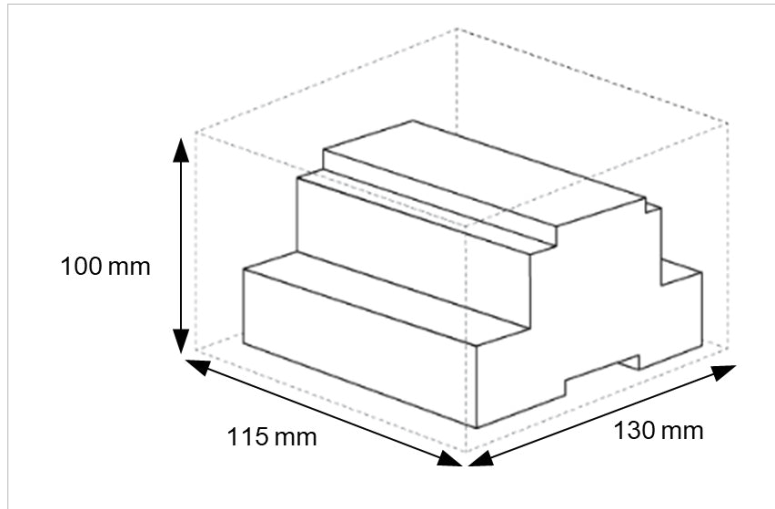
Millimeters: 90 x 106 x 58 mm

Inches: 3.5 x 4.2 x 2.3"

- **Clear space for installation (DxWxH)**

Millimeters: 130 x 115 x 100 mm

Inches: 5.1 x 4.5 x 3.9"



6. Available Applications

6.1. Integration into Modbus Systems

6.1.1. Modbus Registers



NOTICE

This part is common for Modbus RTU and TCP.

Functions to read Modbus registers:

- 03 Read Holding Registers.
- 04 Read Input Registers.

Function to write Modbus registers

- 06 Single Multiple Holding Registers.

Modbus register contents are expressed in MSB .. LSB².

The following tables list all available Modbus registers for the gateway.



NOTICE

Read/write parameter terminology:

- **R**: Read-only register.
- **W**: Write-only register.
- **RW**: Read and write register.

Table 1. Global registers

Modbus address	R/W	Register name	Possible values
2995	R	Gateway Communication Status	0-No Error, 1-Failure
2996	RW	On/Off (all the units)	0-Off, 1-On
2997	RW	Operation Mode (all the units)	0-Cool, 1-Heat, 2-Fan, 3-Auto, 4-Dry
2998	RW	Setpoint (all the units) (x10)	16 .. 30°C / 60 .. 86°F
2999	RW	Fan Speed (all the units)	0-Low, 1-Medium, 2-High, 3-Powerful
3000	RW	Remote Lock (all the units)	1-Lock, 0-Unlock

²MSB: most significant bit; LSB: less significant bit

Table 2. Outdoor unit registers

Modbus address	R/W	Register Name	Possible Values
(OU[1..12]*20)+4000+1	R	OU Compressor 1 Frequency	0 .. 255Hz
(OU[1..12]*20)+4000+2	R	OU Compressor 2 Frequency	0 .. 255Hz
(OU[1..12]*20)+4000+3	R	OU Heat Exchange low 1 temperature (x10)	°C / °F
(OU[1..12]*20)+4000+4	R	OU Heat Exchange low 2 temperature (x10)	°C / °F
(OU[1..12]*20)+4000+5	R	OU Heat Exchange low 3 temperature (x10)	°C / °F
(OU[1..12]*20)+4000+6	R	OU Heat Exchange low 4 temperature (x10)	°C / °F
(OU[1..12]*20)+4000+7	R	OU Heat exchange high 1 temperature (x10)	°C / °F
(OU[1..12]*20)+4000+8	R	OU Heat exchange high 2 temperature (x10)	°C / °F
(OU[1..12]*20)+4000+9	R	OU Heat exchange high 3 temperature (x10)	°C / °F
(OU[1..12]*20)+4000+10	R	OU Heat exchange high 4 temperature (x10)	°C / °F
(OU[1..12]*20)+4000+11	R	OU Unit temperature (x10)	°C / °F
(OU[1..12]*20)+4000+12	R	OU Discharge pipe temperature 1 (x10)	°C / °F
(OU[1..12]*20)+4000+13	R	OU Discharge pipe temperature 2 (x10)	°C / °F
(OU[1..12]*20)+4000+14	R	OU Crankcase 1 temperature (x10)	°C / °F
(OU[1..12]*20)+4000+15	R	OU Crankcase 2 temperature (x10)	°C / °F
(OU[1..12]*20)+4000+16	R	OU Compressor current 1 (x10)	Amperes
(OU[1..12]*20)+4000+17	R	OU Compressor current 2 (x10)	Amperes
(OU[1..12]*20)+4000+18	R	OU High pressure (x100)	MPa
(OU[1..12]*20)+4000+19	R	OU Low pressure (x100)	MPa

Table 3. Indoor unit registers

Modbus address	R/W	Register name	Possible values
(U[0..127]*20)+1	R	Communication Status	0-No Error, 1-Error
(U[0..127]*20)+2	RW	On/Off	0-Off, 1-On
(U[0..127]*20)+3	RW	Operation Mode	0-Cool, 1-Heat, 2-Fan, 3-Auto, 4-Dry
(U[0..127]*20)+4	RW	Temperature Setpoint (x10)	16 .. 30°C / 60 .. 86°F
(U[0..127]*20)+5	RW	Fan Speed	0-Low, 1-Medium, 2-High, 3-Powerful
(U[0..127]*20)+6	RW	Remote Lock	0-Unlock, 1-Lock
(U[0..127]*20)+7	RW	Louver / Vane Position	0-Swing, 1-Pos1, 2-Pos2, 3-Pos3, 4-Pos4
(U[0..127]*20)+8	R	Room Temperature (x10)	0 .. 30°C / 32 .. 86°F
(U[0..127]*20)+9	R	Filter Sign Status	0-Off, 1-On
(U[0..127]*20)+10	R	Unit Error code	0-No Error, X (1.. 255)-Error
(U[0..127]*20)+11	R	Compressor Status	0-Off, 1-On
(U[0..127]*20)+12	W(T)	Filter Sign Reset	1-Reset
(U[0..127]*20)+13	W(T)	RC Error Reset	1-Reset

(U[0..127]*20)+14	R	Thermo On/Off	0-Off, 1-On
(U[0..127]*20)+15	R	Expansion valve opening pulse status	000 .. 999
(U[0..127]*20)+16	R	Decision frequency status	0 .. 255Hz
(U[0..127]*20)+17	R	Demand frequency status	0 .. 255Hz
(U[0..127]*20)+18	R	Heat Exchange low 1 temperature (x10)	°C / °F
(U[0..127]*20)+19	R	Heat Exchange low 2 temperature (x10)	°C / °F
(U[0..127]*20)+20	R	Heat Exchange low 3 temperature (x10)	°C / °F

6.2. Integration into KNX Systems

6.2.1. KNX Signals

The following tables list all available KNX signals for this gateway.



NOTE

Physical Address: The gateway supports (P/S) and (P/I/S) format levels.



NOTICE

Communication object flags:

- **Ri (Read on initialization):** The gateway requests this signal's updated data after an initialization instead of waiting for a change in the signal.
- **R:** The KNX system can read this signal.
- **W:** The KNX system can write this signal.
- **T:** The KNX system receives a telegram when this signal changes its value.
- **U:** This signal's data is updated after a reboot of either the gateway or the bus.

Table 4. Global signals

Description	Function	DPT	Flags
Status_Gateway Communication Status	0-No Error, 1-Failure	1.005-DPT_Alarm (1bit)	R, T
Control_On/Off (all units)	0-Off, 1-On	1.001-DPT_Switch (1bit)	Ri, W, U
Control_Operating Mode (all units)	0-Auto, 1-Heat, 3-Cool, 9-Fan, 14-Dry	20.105-DPT_HVACContrMode (1byte)	Ri, W, U
Control_Operating Mode (all units)	0-Auto, 1-Heat, 2-Dry, 3-Fan, 4-Cool	5.x (1byte)	Ri, W, U
Control_Operating Mode (all units)	0-Cool, 1-Heat, 2-Fan, 3-Dry, 4-Auto	5.x (1byte)	Ri, W, U
Control_Fan Speed (all units)	0-Low, 1-Medium, 2-High, 3-Powerful	5.x (1byte)	Ri, W, U
Control_Setpoint (all the units)	16..30°C / 60..86°F	9.001/9.027-DPT_Value_Temp (2byte)	Ri, W, U
Control_Remote Lock/Unlock (all the units)	0-Unlock, 1-Lock	1.002 DPT_Bool (1bit)	Ri, W, U

Table 5. Outdoor units

Description	Function	DPT	Flags	Unit ID	OU
Status_OU Compressor 1 Frequency	Hz	14.033-DPT_Value_Frequency (4byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Compressor 2 Frequency	Hz	14.033-DPT_Value_Frequency (4byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Heat Exchange low 1 temperature	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Heat Exchange low 2 temperature	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Heat Exchange low 3 temperature	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Heat Exchange low 4 temperature	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Heat Exchange high 1 temperature	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Heat Exchange high 2 temperature	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Heat Exchange high 3 temperature	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Heat Exchange high 4 temperature	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 12	1 .. 12

Status_OU Unit temperature	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Discharge pipe temperature 1	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Discharge pipe temperature 2	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Crankcase temperature 1	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Crankcase temperature 2	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Compressor current 1	Amperes	14.019-DPT_Value_Electric_Current (4byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Compressor current 2	Amperes	14.019-DPT_Value_Electric_Current (4byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU High pressure	MPa	14.058-DPT_Value_Pressure (4byte)	R, T	Unit 1 .. Unit 12	1 .. 12
Status_OU Low pressure	MPa	14.058-DPT_Value_Pressure (4byte)	R, T	Unit 1 .. Unit 12	1 .. 12

Table 6. Indoor units

Description	Function	DPT	Flags	Unit ID	IU
Status_CommError	0-No error, 1-Error	1.005-DPT_Alarm (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_On/Off	0-Off, 1-On	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_On/Off	0-Off, 1-On	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Operation mode	0-Auto, 1-Heat, 3-Cool, 9-Fan, 14-Dry	20.105-DPT_HVACContrMode (1byte)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Operation mode	0-Auto, 1-Heat, 3-Cool, 9-Fan, 14-Dry	20.105-DPT_HVACContrMode (1byte)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Operation mode	0-Auto, 1-Heat, 2-Dry, 3-Fan, 4-Cool	5.x (1byte)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Operation mode	0-Auto, 1-Heat, 2-Dry, 3-Fan, 4-Cool	5.x (1byte)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Operation mode	0-Cool, 1-Heat, 2-Fan, 3-Dry, 4-Auto	5.x (1byte)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Operation mode	0-Cool, 1-Heat, 2-Fan, 3-Dry, 4-Auto	5.x (1byte)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Mode Cool/Heat	0-Cool, 1-Heat	1.100-DPT_Heat/Cool (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Mode Cool/Heat	0-Cool, 1-Heat	1.100-DPT_Heat/Cool (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Auto mode	1-Set auto mode	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Auto mode	1-Auto mode active, 0-Auto mode not active	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Heat mode	1-Set heat mode	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Heat mode	1-Heat mode active, 0-Heat mode not active	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Cool mode	1-Set cool mode	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Cool mode	1-Cool mode active, 0-Cool mode not active	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Fan mode	1-Set fan mode	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Fan mode	1-Fan mode active, 0-Fan mode not active	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Dry mode	1-Set dry mode	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Dry mode	1-Dry mode active, 0-Dry mode not active	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Temperature setpoint	16..30°C / 60..86°F	9.001/9.027-DPT_Value_Temp (2byte)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Temperature setpoint	16..30°C / 60..86°F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 128	1 .. 128

Control_Fan speed enumerated	0-Low, 1-Medium, 2-High, 3-Powerful	5.x (1byte)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Fan speed enumerated	0-Low, 1-Medium, 2-High, 3-Powerful	5.x (1byte)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Fan speed scaling	Thresholds (0%..24%; 25%..49%; 50%..74%; 75%..100%)	5.001-DPT_Scaling (1byte)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Fan speed scaling	Thresholds (25%; 50%; 75%; 100%)	5.001-DPT_Scaling (1byte)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Fan speed low	1-Set fan speed low	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Fan speed low	1-Speed low active, 0-Speed low not active	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Fan speed medium	1-Set fan speed medium	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Fan speed medium	1-Speed medium active, 0-Speed medium not active	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Fan speed high	1-Set fan speed high	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Fan speed high	1-Speed high active, 0-Speed high not active	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Fan speed powerful	1-Set fan speed powerful	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Fan speed powerful	1-Speed powerful active, 0-Speed powerful not active	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Louver / Vane Position enumerated	1-Position 1..4-Position 4	5.x (1byte)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Louver / Vane Position enumerated	1-Position 1..4-Position 4	5.x (1byte)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Louver / Vane Position scaling	Thresholds (0%..24%; 25%..49%; 50%..74%; 75%..100%)	5.001-DPT_Scaling (1byte)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Louver / Vane Position scaling	Thresholds (25%; 50%; 75%; 100%)	5.001-DPT_Scaling (1byte)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Vanes position-1	1-Set position-1 vanes	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Vanes position-1	1-Vanes position-1 active, 0-Vanes position-1 not active	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Vanes position-2	1-Set position-2 vanes	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Vanes position-2	1-Vanes position-2 active, 0-Vanes position-2 not active	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Vanes position-3	1-Set position-3 vanes	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Vanes position-3	1-Vanes position-3 active, 0-Vanes position-3 not active	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Vanes position-4	1-Set position-4 vanes	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Vanes position-4	1-Vanes position-4 active, 0-Vanes position-4 not active	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_Vanes position swing	0-Swing off; 1-Swing on	1.001-DPT_Switch (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Vanes position swing	0-Swing off; 1-Swing on	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Status_AC ambient temperature	0..30 °C / 32..86°F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_KNX ambient temperature	°C / F°	9.001/9.027-DPT_Value_Temp (2byte)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_FilterSign	0-Normal, 1-Alarm	1.005-DPT_Alarm (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_FilterReset	0-No reset, 1-Reset	1.015-DPT_Reset (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128
Status_Unit error code	0-No Error, X-Error (0..255)	8.x (2 byte)	R, T	Unit 1 .. Unit 128	1 .. 128
Status_Compressor status	0-Off, 1-On	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Control_RC Error Reset	0-No reset, 1-Reset	1.015-DPT_Reset (1bit)	Ri, W, U	Unit 1 .. Unit 128	1 .. 128

Status_Thermo On/Off	0-Off, 1-On	1.001-DPT_Switch (1bit)	R, T	Unit 1 .. Unit 128	1 .. 128
Status_Expansion valve opening pulse status	(000..999)	8.x (2 byte)	R, T	Unit 1 .. Unit 128	1 .. 128
Status_Decision frequency status	(0..255Hz)	14.033-DPT_Value_Frequency (4byte)	R, T	Unit 1 .. Unit 128	1 .. 128
Status_Demand frequency status	(0..255Hz)	14.033-DPT_Value_Frequency (4byte)	R, T	Unit 1 .. Unit 128	1 .. 128
Status_Heat Exchange low 1 temperature	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 128	1 .. 128
Status_Heat Exchange low 2 temperature	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 128	1 .. 128
Status_Heat Exchange low 3 temperature	°C / °F	9.001/9.027-DPT_Value_Temp (2byte)	R, T	Unit 1 .. Unit 128	1 .. 128

6.3. Integration into BACnet Systems



NOTICE

You can see the Protocol Implementation Conformance Statement (PICS) document in <https://www.intesis.com/docs/bacnet-client-pic-statement-776>

6.3.1. BACnet Objects



NOTICE

This part is common for BACnet MS/TP and BACnet/IP.

Input object types:

- Binary input.

Output object types:

- Binary output.
- Multistate output.
- Analog output.

The following tables list all available BACnet objects for this gateway.

Table 7. Global signals

Object instance	Type	Possible values	Object name
15000 + 0	3-Binary Input	0-No error, 1-Error	Gateway Communication Status
15000 + 0	4-Binary Output	0-Off, 1-On	On/Off (all units)
15000 + 0	14-Multistate Output	1-Heat, 2-Cool, 3-Fan, 4-Dry, 5-Auto	Mode (all units)
15000 + 0	1-Analog Output	°C / °F	Setpoint
15000 + 1	14-Multistate Output	1-Low, 2-Medium, 3-High, 4-Powerful	FanSpeed (all units)
15000 + 1	4-Binary Output	0-Unlock, 1-Lock	Remote Lock

Table 8. Outdoor units

Object instance	Type	Possible values	Object name	Unit ID	OU
(OU[1 .. 12]*20) + 10000 + 0	0-Analog Input	Hz	OXXX_Compressor 1 Frequency	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 1	0-Analog Input	Hz	OXXX_Compressor 2 Frequency	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 2	0-Analog Input	°C / °F	OXXX_Heat Exchange low 1 temperature	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 3	0-Analog Input	°C / °F	OXXX_Heat Exchange low 2 temperature	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 4	0-Analog Input	°C / °F	OXXX_Heat Exchange low 3 temperature	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 5	0-Analog Input	°C / °F	OXXX_Heat Exchange low 4 temperature	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 6	0-Analog Input	°C / °F	OXXX_Heat exchange high 1 temperature	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 7	0-Analog Input	°C / °F	OXXX_Heat exchange high 2 temperature	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 8	0-Analog Input	°C / °F	OXXX_Heat exchange high 3 temperature	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 9	0-Analog Input	°C / °F	OXXX_Heat exchange high 4 temperature	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 10	0-Analog Input	°C / °F	OXXX_Unit temperature	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 11	0-Analog Input	°C / °F	OXXX_Discharge pipe 1 temperature	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 12	0-Analog Input	°C / °F	OXXX_Discharge pipe 2 temperature	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 13	0-Analog Input	°C / °F	OXXX_Crankcase temperature 1	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 14	0-Analog Input	°C / °F	OXXX_Crankcase temperature 2	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 15	0-Analog Input	Amperes	OXXX_Compressor current 1	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 12]*20) + 10000 + 16	0-Analog Input	Amperes	OXXX_Compressor current 2	Unit 1 .. Unit 12	1 .. 12

Object instance	Type	Possible values	Object name	Unit ID	OU
(OU[1 .. 128]*20) + 10000 + 17	0-Analog Input	MPa	OXXUX_High pressure	Unit 1 .. Unit 12	1 .. 12
(OU[1 .. 128]*20) + 10000 + 18	0-Analog Input	MPa	OXXUX_Low pressure	Unit 1 .. Unit 12	1 .. 12

Table 9. Indoor units

Object instance	Type	Possible values	Object name	Unit ID	IU
(IU[1 .. 128]*25) + 0	3-Binary Input	0-No Error, 1-Error	OXXUXX_Communication Status_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 1	3-Binary Input	0-Off,1-On	OXXUXX_On/Off_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 0	4-Binary Output	0-Off,1-On	OXXUXX_On/Off_C	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 0	13-Multistate Input	1-Heat, 2-Cool,3-Fan,4-Dry,5-Auto	OXXUXX_Operation Mode_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 0	14-Multistate Output	1-Heat,2-Cool,3-Fan,4-Dry,5-Auto	OXXUXX_Operation Mode_C	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 0	0-Analog Input	°C / °F	OXXUXX_Temperature Setpoint_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 0	1-Analog Output	°C / °F	OXXUXX_Temperature Setpoint_C	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 1	13-Multistate Input	1-Low, 2-Medium, 3-High, 4-Powerful	OXXUXX_FanSpeed_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 1	14-Multistate Output	1-Low, 2-Medium, 3-High, 4-Powerful	OXXUXX_FanSpeed_C	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 2	3-Binary Input	0-Unlock, 1-Lock	OXXUXX_Remote Lock_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 1	4-Binary Output	0-Unlock, 1-Lock	OXXUXX_Remote Lock_C	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 2	13-Multistate Input	1-Swing, 2-Pos1, 3-Pos2, 4-Pos3, 5-Pos4	OXXUXX_Louver / Vane Position_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 2	14-Multistate Output	1-Swing, 2-Pos1, 3-Pos2, 4-Pos3, 5-Pos4	OXXUXX_Louver / Vane Position_C	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 1	0-Analog Input	°C / °F	OXXUXX_Room Temperature_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 3	3-Binary Input	0-Off,1-On	OXXUXX_Filter Sign_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 2	0-Analog Input	0-No Error, X-Error(0..255)	OXXUXX_Unit Error code_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 4	3-Binary Input	0-Off,1-On	OXXUXX_Compressor_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 2	4-Binary Output	0-No reset, 1-Reset	OXXUXX_Filter Sign Reset_C	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 3	4-Binary Output	0-No reset, 1-Reset	OXXUXX_RC Error Reset_C	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 5	3-Binary Input	0-Off,1-On	OXXUXX_Thermo On/Off_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 3	0-Analog Input	000..999	OXXUXX_Expansion valve opening pulse_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 4	0-Analog Input	0..255 Hz	OXXUXX_Decision frequency_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 5	0-Analog Input	0..255 Hz	OXXUXX_Demand frequency_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 6	0-Analog Input	°C / °F	OXXUXX_Heat Exchange low 1 temperature_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 7	0-Analog Input	°C / °F	OXXUXX_Heat Exchange low 2 temperature_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 8	0-Analog Input	°C / °F	OXXUXX_Heat Exchange low 3 temperature_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 9	0-Analog Input	kWh	OXXUXX_Consumption Yesterday_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 10	0-Analog Input	kWh	OXXUXX_Consumption Today_S	Unit 1 .. Unit 128	1 .. 128
(IU[1 .. 128]*25) + 11	0-Analog Input	kWh	OXXUXX_Consumption Total_S	Unit 1 .. Unit 128	1 .. 128

6.4. Integration into Home Automation Systems

6.4.1. Home Automation Signals

The following tables list all available Home Automation signals for this gateway.



NOTE

SET: Command used to control the indoor unit. It is sent by the client.

CHN: Command used to get notifications of changes in the status of a specific function of the gateway. It is sent spontaneously by the gateway itself.

GET: Command used to get the status of a specific function. It is sent by the client.

To know more about the Home Automation protocol, see the [Protocol specifications manual](#).

Table 10. Indoor units

Description	acNum	Function	Values	Commands (See Note)	Unit ID	IU	OU
On/Off	1	ONOFF	ON/OFF	SET/CHN/GET	Unit 1 .. Unit 128	1 .. 128	1 .. 12
Operation Mode	1	MODE	HEAT/COOL/FAN/DRY/ AUTO	SET/CHN/GET	Unit 1 .. Unit 128	1 .. 128	1 .. 12
Fan Speed	1	FANSP	LOW/MED/HIGH/ POWERFUL	SET/CHN/GET	Unit 1 .. Unit 128	1 .. 128	1 .. 12
Vane Position	1	VANEUD	1/2/3/4/SWING	SET/CHN/GET	Unit 1 .. Unit 128	1 .. 128	1 .. 12
Temperature Setpoint (x10) (16 .. 30°C)	1	SETPTEMP	(°C)	SET/CHN/GET	Unit 1 .. Unit 128	1 .. 128	1 .. 12
AC Ambient Temperature (x10) (0 .. 30°C)	1	AMBTMP	(°C)	CHN/GET	Unit 1 .. Unit 128	1 .. 128	1 .. 12
Unit Error code (0-No Error, X- Error)	1	ERRCODE	0/X	CHN/GET	Unit 1 .. Unit 128	1 .. 128	1 .. 12
Error IU	1	ERRSTATUS	OK/ERR	CHN/GET	Unit 1 .. Unit 128	1 .. 128	1 .. 12

7. Late Configuration: Change the Gateway's Protocol

Reconfiguring the gateway with a different protocol is very easy:

1. Connect the gateway to the PC and open the configuration tool Intesis MAPS.
2. Select the new template you need.
3. Click **Next** or double-click the template in the list.
4. A message will pop up, asking if you want to save the project currently loaded in the gateway.
5. Click **Yes** or **No**, depending on your needs.
6. Configure the needed parameters and signals for your new project.
7. Send the configuration to the gateway.



NOTE

For a complete gateway's configuration guide, please refer to the [Intesis MAPS User manual for IN776MHI00xO000](#).

8. Error Codes



NOTE

These error codes are the same for all applications.

Error code	Code in the wired RC	Description
0	N/A	No active error
1	E1	Remote controller communication error
2	E2	Duplicated indoor unit address
3	E3	Outdoor unit signal line error
4	E4	Invalid I/U address
5	E5	Communication error during operation
6	E6	Indoor heat exchanger temperature thermistor anomaly
7	E7	Indoor return air temperature thermistor anomaly
8	E8	Heating overload operation
9	E9	Drain trouble
10	E10	Excessive number of indoor units (more than 17) by controlling one remote controller
11	E11	RAS is done when plural R/Cs are connected
12	E12	Address setting error by mixed setting method
13	E13	SAF Malfunction
14	E14	Communication error between master and slave indoor units
15	E15	I/U Supply Air sensor disconnection
16	E16	Indoor fan motor anomaly
17	E17	I/U Fan motor Malfunction
18	E18	Gas sensor Malfunction
19	E19	Indoor unit operation check, drain motor check setting error
20	E20	I/U Fan motor rotation
21	E21	Grille open
28	E28	Remote controller temperature thermistor anomaly
30	E30	Unmatched connection of indoor and outdoor unit
31	E31	Duplicated outdoor unit address No.
32	E32	Open L3 Phase on power supply at primary side
33	E33	Inverter primary current error
34	E34	Missing fase
35	E35	Cooling overload operation
36	E36	Discharge pipe temperature error
37	E37	Outdoor heat exchanger temperature thermistor anomaly
38	E38	Outdoor/Ambient air temperature thermistor anomaly
39	E39	Discharge pipe temperature thermistor anomaly
40	E40	High pressure error
41	E41	Power transistor overheat
42	E42	Current cut
43	E43	Excessive number of indoor units connected, excessive total capacity of connection
44	E44	Abnormal Comp. bottom temp
45	E45	Communication error between inverter PCB and outdoor control PCB
46	E46	Mixed address setting methods coexistent in same network

Error code	Code in the wired RC	Description
47	E47	Inverter over-current error
48	E48	Outdoor DC fan motor anomaly
49	E49	Low pressure anomaly
50	E50	Ice storage unit Error
51	E51	Inverter anomaly
52	E52	Water temp sensor disconnection
53	E53	Suction pipe temperature thermistor anomaly
54	E54	High/Low pressure sensor anomaly
55	E55	Underneath temperature thermistor anomaly
56	E56	Power transistor temperature thermistor anomaly
65336	IH2	CAUTION. Bus power supply on critical level. Use an external power supply or check switch configuration
57	E57	Insufficient in refrigerant amount or detection of service valve closure
58	E58	Anomalous compressor by loss of synchronism
59	E59	Compressor startup failure
60	E60	Rotor position detection failure / Anomalous compressor rotor lock
61	E61	Communication error between the master unit and slave units
62	E62	Outdoor unit address error
63	E63	Emergency stop
65535	IH1	Error in the communication of IACCC device with the AC unit
64	E64	Coolant failure
65	E65	System malfunction when PAC I/F is used
66	E66	I/F address duplication
67	E67	V-multi excess number of indoor unit
68	E68	Communication error between V-multi - indoor unit
70	E70	Communication error between CC1 - indoor unit
71	E71	Communication error between NR- indoor unit
72	E72	Communication error between CC2 - indoor unit
73	E73	Communication error between CC3 - indoor unit
74	E74	Address duplication for Network equipment
75	E75	Communication circuit failure in network optional equipment
79	E79	Communication error between the SLQ board - indoor unit
80	E80	Abnormal engine water temp
81	E81	Abnormal oil pressure of engine
82	E82	Too much revolution of engine
83	E83	Too less revolution of engine
84	E84	Engine start-up failure
85	E85	Engine stop failure
86	E86	Oil pressure sensor disconnection
87	E87	Water temperature sensor disconnection
88	E88	Engine oil failure
89	E89	Other engine failure
90	E90	Actuator failure
	M07	I/U overload alarm
	M09	Over-current of drain motor

**NOTE**

If you detect a non-listed error code, please contact Mitsubishi Heavy Industries technical support.